World Academy of Science, Engineering and Technology
International Journal of Bioengineering and Life Sciences
Vol:16, No:12, 2022

The Effect of Chitosan and Mycorrhization on Some Growth-Physiological Indices of Salvia leriifolia Benth.

Authors : Marzieh Fotovvat, Farzaneh Najafi, Ramazan Ali Khavari-Nejad, Daryush Talei, Farhad Rejali

Abstract : Salvia leriifolia Benth. is one of the valuable and perennial medicinal plants of the Lamiaceae family, geographically growing in the south and tropical regions of Khorassan and Semnan provinces in Iran. In recent years, several medicinal properties such as antimicrobial, antifungal, anti-diabetic, analgesic, and anti-inflammatory effects have been reported from this plant. The use of elicitors such as chitosan and Arbuscular mycorrhizal fungi (AMF) symbiosis are the main methods for increasing the production of secondary metabolites, growth, and physiological factors in plants. The main aim of this study was to investigate the effects of foliar spraying applications by chitosan and/or the contribution of AMF (Glomus interaradices) on some growth factors and chlorophyll content of S. leriifolia under glasshouse conditions. The sterilized seeds were germinated by placing them into a cocopeat. After one month, seedlings that were in the 2-4 leaf stage were transferred to plastic pots (garden soil and pumice at 2:1) with or without mycorrhizal fungi. Chitosan (0, 50, 100, 200, and 400 mg L-1) was sprayed four times in the fourth month of the vegetative period. The results showed that fresh leaf weight, fresh root weight, root height, and chlorophyll content could change in the plant treated with chitosan and AMF symbiosis. So that the highest chlorophyll content and fresh weight of roots and leaves were observed in the interaction of chitosan and G. interaradices. In general, by optimizing the chitosan concentration and the use of appropriate AMF symbiosis, it is possible to improve the growth and quality of the medicinal plant S. leriifolia.

Keywords : chitosan, chlorophyll, growth factors, mycorrhiza
Conference Title : ICPSP 2022 : International Conference on Plant Science and Physiology
Conference Location : New York, United States
Conference Dates : December 09-10, 2022